This Page is Inserted by IFW Indexing and Scanning Operations and is not part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ **BLACK BORDERS**
- ☐ **IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**
- ☐ **FADED TEXT OR DRAWING**
- ☐ **BLURRED OR ILLEGIBLE TEXT OR DRAWING**
- ☐ **SKEWED/SLANTED IMAGES**
- ☐ **COLOR OR BLACK AND WHITE PHOTOGRAPHS**
- ☐ **GRAY SCALE DOCUMENTS**
- ☐ **LINES OR MARKS ON ORIGINAL DOCUMENT**
- ☐ **REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**
- ☐ **OTHER:** _____

IMAGES ARE BEST AVAILABLE COPY.
As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.

OIPE JC41
JUL 26 2002
PATENT & TRADEMARK

SUPPLEMENTAL FORM PTO – 1449 INFORMATION DISCLOSURE STATEMENT	ATTORNEY DOCKET NO.: MIT-051CN (5473/53) APPLICANTS: Zilles et al. SERIAL NO.: 10/055,565 FILING DATE: October 26, 2001 GROUP: 2173

RECEIVED
JUL 30 2002
Technology Center 2100

U.S. PATENT DOCUMENTS							
EXAM. INIT.		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	A73	2,475,484	07/01/49	DeNise	~~318~~	~~628~~	05/14/46
	A74	3,531,868	10/06/70	Stevenson	33	174	04/18/68
	A75	3,920,972	11/18/75	Corwin et al.	235	151.11	07/16/74
	A76	3,944,798	03/16/76	Eaton	235	161.3	04/18/74
	A77	4,216,467	08/05/80	Colston	~~340~~	~~365~~L	12/22/77
	A78	4,367,532	01/04/83	Crum et al.	364	~~513~~	12/24/80
	A79	4,420,808	12/13/83	Diamond et al.	~~364~~	434	01/18/82
	A80	4,521,685	06/04/85	Rebman	250	229	03/01/82
	A81	4,638,798	01/27/87	Shelden et al.	~~128~~	~~303B~~	09/10/80
	A82	4,653,011	03/24/87	Iwano	~~364~~	~~513~~	03/27/85
	A83	4,670,851	06/02/87	Murakami et al.	~~364~~	~~518~~	10/22/84
	A84	4,680,519	07/14/87	Chand et al.	~~318~~	~~568~~	09/23/85
	A85	4,703,443	10/27/87	Moriyasu	~~364~~	~~559~~	02/07/85
	A86	4,729,098	03/01/88	Cline et al.	~~364~~	~~414~~	06/05/85
	A87	4,769,763	09/06/88	Trieb et al.	~~364~~	~~559~~	06/16/86
	A88	4,791,934	12/20/88	Brunnett	~~128~~	~~653~~	08/07/86
	A89	4,819,195	04/04/89	Bell et al.	~~364~~	~~571.05~~	01/20/87
	A90	4,823,634	04/25/89	Culver	~~74~~	~~471~~	11/03/87
	A91	4,853,874	08/01/89	Iwamoto et al.	364	513	11/20/87
	A92	4,942,538	07/17/90	Yuan et al.	~~364~~	~~513~~	02/23/89
	A93	4,945,305	07/31/90	Blood	324	~~207.17~~	04/11/89
	A94	4,945,501	07/31/90	Bell et al.	364	~~571.05~~	04/12/89
	A95	4,961,138	10/02/90	Gorniak	364	200	10/02/89

OIPE JC41
JUL 26 2002
PATENT & TRADEMARK

SUPPLEMENTAL FORM PTO – 1449

INFORMATION DISCLOSURE STATEMENT

ATTORNEY DOCKET NO.: MIT-051CN (5473/53)

APPLICANTS: Zilles et al.

SERIAL NO.: 10/055,565

FILING DATE: October 26, 2001

GROUP: 2173

RECEIVED
JUL 30 2002
Technology Center 2100

	A96	4,973,215	11/27/90	Karlen et al.	414	729	02/14/89
	A97	4,982,504	01/08/91	Söderberg et al.	33	502	02/17/89
	A98	5,040,306	08/20/91	McMurtry et al.	33	556	02/20/89
	A99	5,053,975	10/01/91	Tsuchihashi et al.	364	513	06/08/89
	A100	5,088,046	02/11/92	McMurtry	364	474.03	12/19/88
	A101	5,088,055	02/11/92	Oyama	364	560	02/22/90
	A102	5,105,367	04/14/92	Tsuchihashi et al.	395	99	10/16/89
	A103	5,130,632	07/14/92	Ezawa et al.	318	568.11	12/05/90
	A104	5,131,844	07/21/92	Marinaccio et al.,	433	72	04/08/91
	A105	5,185,561	02/09/93	Good et al.	318	432	07/23/91
	A106	5,189,806	03/02/93	McMurtry et al.	33	503	08/17/92
	A107	5,204,824	04/20/93	Fujimaki	364	474.03	08/23/90
	A108	5,220,260	06/15/93	Schuler	318	561	10/24/91
	A109	5,396,265	03/07/95	Ulrich et al.	345	158	09/17/90
	A110	5,414,337	05/09/95	Schuler	318	561	06/11/93
	A111	5,438,529	08/01/95	Rosenberg et al.	364	709.1	01/26/94
	A112	5,555,894	09/17/96	Doyama et al.	128	782	05/02/94
	A113	5,559,412	09/24/96	Schuler	318	561	05/03/95
	A114	5,587,937	12/24/96	Massie et al.	364	578	04/25/95
	A115	5,589,854	12/31/96	Tsai	345	161	06/22/95
	A116	5,623,642	04/01/97	Katz et al.	395	500	04/06/94
	A117	5,642,469	06/01/97	Hannaford et al.	395	99	10/10/93
	A118	5,666,138	09/09/97	Culver	345	161	11/22/94
	A119	5,694,013	12/02/97	Stewart et al.	318	561	09/06/96
	A120	5,731,804	03/24/98	Rosenberg	345	156	01/18/95
	A121	5,742,278	04/21/98	Chen et al.	345	156	11/01/95

JUL 26 2002

SUPPLEMENTAL FORM PTO – 1449 INFORMATION DISCLOSURE STATEMENT	ATTORNEY DOCKET NO.: MIT-051CN (5473/53) APPLICANTS: Zilles et al. SERIAL NO.: 10/055,565 FILING DATE: October 26, 2001 GROUP: 2173

RECEIVED
JUL 3 0 2002
Technology Center 2100

	A122	5,767,839	06/16/98	Rosenberg	345	161	03/03/95
	A123	5,769,640	06/23/98	Jacobus et al.	434	262	08/10/95
	A124	5,800,177	09/01/98	Gillio	434	262	07/11/96
	A125	5,800,178	09/01/98	Gillio	434	262	07/11/96
	A126	5,800,179	09/01/98	Bailey	434	262	07/23/96
	A127	5,802,353	09/01/98	Avila et al.	395	500	06/12/96
	A128	5,803,738	09/08/98	Latham	434	29	08/05/96
	A129	5,805,140	09/08/98	Rosenberg et al.	345	161	11/17/95
	A130	5,821,920	10/13/98	Rosenberg et al.	345	156	03/28/97
	A131	5,825,308	10/20/98	Rosenberg	341	20	11/26/96
	A132	5,828,197	10/27/98	Martin, et al.	318	567	10/25/96
	A133	5,831,408	11/03/98	Jacobus, et al.	318	568.11	05/12/97
	A134	5,859,934	01/12/99	Green	382	296	01/14/97
	A135	5,880,714	03/09/99	Rosenberg et al.	345	156	01/15/97
	A136	5,889,670	03/30/99	Schuler et al.	364	186	01/11/96
PATENT WITHDRAWN	A137	5,903,456	05/11/99	Schena et al.	364	190	01/27/97
PATENT WITHDRAWN	A138	5,907,487	05/25/99	Rosenberg et al.	364	190	04/02/97
	A139	5,913,727	06/22/99	Ahdoot	463	39	06/13/97
	A140	5,929,607	07/27/99	Rosenberg et al.	320	166	04/02/97
	A141	5,929,846	07/27/99	Rosenberg et al.	345	161	06/05/97
	A142	5,956,484	09/21/99	Rosenberg et al.	395	200.33	08/01/96
	A143	6,084,587	07/04/00	Tarr et al.	345	419	02/08/96
	A144	6,191,796	02/20/01	Tarr	345	433	01/21/98
	A145	6,337,678	01/20/02	Fish	345	156	07/21/99
	A146	6,342,880	01/20/02	Rosenberg et al.	345	161	10/31/95
	A147	6,369,834 B1	04/09/02	Zilles et al.	345	701	06/02/99

OIPE JC
JUL 26 2002
PATENT & TRA

SUPPLEMENTAL FORM PTO – 1449 INFORMATION DISCLOSURE STATEMENT	ATTORNEY DOCKET NO.: MIT-051CN (5473/53) APPLICANTS: Zilles et al. SERIAL NO.: 10/055,565 FILING DATE: October 26, 2001 GROUP: 2173

RECEIVED
JUL 30 2002
Technology Center 2100

FOREIGN PATENT DOCUMENTS

EXAM INIT.		DOCUMENT NUMBER	DATE	COUNTRY CODE	CLASS	SUB CLASS	FILING DATE	ABSTRACT ONLY	ENGLISH LANG (Y/N)
	B9	WO 95/02801	01/26/95	PCT	~~G01B~~	~~7/03~~	07/12/94	N	Y
	B10	WO 97/44775	11/27/97	PCT	G09G ~~G06G~~ B25J G05B G06F G06G A03B	5/08 ~~3/00~~ 9/18 19/19 19/408 17/00 7/48 71/00 24/00	05/16/97	N	Y
	B11	WO 98/06024	02/12/98	PCT	G06G	3/00 15/16 17/30	07/31/97	N	Y
	B12	WO 98/26342	06/18/98	PCT	G06F	15/00	11/25/97	N	Y
	B13	WO 98/30951	07/16/98	PCT	~~G09F~~	~~3/02~~	01/07/98	N	Y
	B14	WO 98/58308	12/23/98	PCT	~~G06F~~	~~3/033~~	06/15/98	N	Y
	B15	WO 98/58323	12/23/98	PCT	~~G06F~~	~~15/00~~	06/16/98	N	Y
	B16	WO 99/10872	03/04/99	PCT	~~G09G~~	~~5/00~~	08/21/98	N	Y
	B17	EP 0 915 434 A2	05/12/99	EP	~~G06T~~	~~15/50~~	05/14/98	N	Y

OTHER ART, JOURNAL ARTICLES, ETC.

EXAM. INIT.		OTHER DOCUMENTS: (Including Author, Title, Date, Relevant Pages, Place of Publication)
	C42	Avila et al., "A Haptic Interaction Method for Volume Visualization," GE Corporate Research & Development, Schenectady, NY, pp. 1-9 (1996).
	C43	Bergamasco, "Design of Hand Force Feedback Systems for Glove-like Advanced Interfaces", IEEE, September 1992, pp. 286-293.
	C44	Burdea, G.C., "Force And Touch Feedback For Virtual Reality," John Wiley and Sons, Inc., New York, New York, pp. 190-193 (1996).
	C45	Colgate et al., "Implementation of Stiff Virtual Walls in Force Reflecting Interfaces," IEEE Virtual Reality Annual International Symposium (Seattle, WA), pp. 202-208 (September 18-22, 1993).
	C46	Decaudin, P., "Geometric Deformation by Merging a 3D-Object with a Simple Shape," Graphics Interface '96 Proceedings (Toronto, Canada), 6 pgs. (May 21-24, 1996).
	C47	Galyean, T.A., "Sculpting: An Interactive Volumetric Modeling Technique," Computer Graphics (SIGGRAPH '91 Las Vegas), Vol. 25, No. 4, pp. 267-274 (July 1991).

OIPE JC#1
JUL 26 2002
PATENT & TRADEMARK

SUPPLEMENTAL FORM PTO – 1449 INFORMATION DISCLOSURE STATEMENT	ATTORNEY DOCKET NO.: MIT-051CN (5473/53) APPLICANTS: Zilles et al. SERIAL NO.: 10/055,565 FILING DATE: October 26, 2001 GROUP: 2173

RECEIVED
JUL 30 2002
Technology Center 2100

	C48	Hashimoto et al., "Dynamic Force Simulator for Force Feedback Human-Machine Interaction", IEEE, September 1993, pp. 209-215.
	C49	Hirota et al., "Providing Force Feedback in Virtual Environments", IEEE, September 1995, pp. 22-30.
	C50	Hirota et al., "Development of Surface Display," Proceedings of the Virtual Reality Annual International Symposium (Seattle), pp. 256-262 (September 18-23, 1993).
	C51	Immersion Corp., "Impulse Engine 2000," http://www.immerse.com/WWWpages/IE2000pg.htm, 2 pgs. (1997).
	C52	Ishii et al., "A 3D Interface Device with Force Feedback: A Virtual Work Space for Pick-and-Place Tasks", IEEE, September 1993, pp. 331-335.
	C53	Iwata, H., "Artificial Reality with Force-feedback: Development of Desktop Virtual Space with Compact Master Manipulator," Computer Graphics (SIGGRAPH '90 Dallas), Vol. 24, No. 4, pp. 165-170 (August 1990).
	C54	Kelley et al. "MagicMouse: Tactile and Kinesthetic Feedback in the Human-Computer Interface Using an Electromagnetically Actuated Input/Output Device," Department of Electrical Engineering, University of British Columbia, Vancouver, BC, V6T 1Z4, Canada, October 19, 1993, pp. 1-27.
	C55	Lewis, P.H., "Electronic Pen With Its Own Eraser", Personal Computers, July, 1995, p. C8.
	C56	Millman et al., "A System for the Implementation and Kinesthetic Display of Virtual Environments," Telemanipulator Technology, Proceedings of 1992 SPIE, Vol. 1833, pp. 49-56 (1992).
	C57	Payne et al., "Distance Field Manipulation of Surface Models," IEEE Computer Graphics & Applications, pp. 65-71 (January 1992).
	C58	Wang et al., "Volume Sculpting," 1995 Symposium on Interactive 3D Graphics (Monterey, CA), pp. 151-156 (1995).
	C59	Wilson R.K., "Many-Atom Molecular Dynamics with an Array Processor", Department of Chemistry, University of California – San Diego, La Jolla, 1977, pp. 147-169
	C60	Wilson R.K., "Multiprocessor Molecular Mechanics", Departmetn of Chemistry, University of California, San Diego, La Jolla, 1975, pp. 17-52

2451029

Examiner: Vamsi Pillai Date: 7/29/04

OIPE JC56
JAN 26 2004
PATENT & TRADEMARK OFFICE

FORM PTO - 1449 SECOND SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT	ATTORNEY DOCKET NO.: MIT-051CN2 APPLICANTS: Zilles *et al.* SERIAL NO.: 10/055,565 FILING DATE: October 26, 2001 GROUP: 2173

RECEIVED
JAN 29 2004
Technology Center 2100

U.S. PATENT DOCUMENTS

EXAM. INIT.		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
	A148	5,903,270	05/11/1999	Gentry et al.			
	A149	5,963,212	10/05/1999	Bakalash			
	A150	5,973,678	10/26/1999	Stewart			
	A151	6,064,394	05/16/2000	Morrison			
	A152	6,384,822 B1	05/07/2002	Bilodeau et al.	~~345~~	~~422~~	10/13/99
	A153	6,608,631	08/19/2003	Milliron			
	A154	2003/0117411	06/26/2003	Fujiwara et al.			

FOREIGN PATENT DOCUMENTS

EXAM. INIT.		DOCUMENT NUMBER	DATE	COUNTRY CODE	CLASS	SUB CLASS	FILING DATE	ABSTRACT ONLY	ENGLISH LANG (Y/N)

OTHER ART, JOURNAL ARTICLES, ETC.

EXAM. INIT.	OTHER DOCUMENTS: (Including Author, Title, Date, Relevant Pages, Place of Publication)	
	C61	"3-D Animation Workshop," printed 7/29/03, http://webreference.com/3d/, Lessons 39, 64-68, and 72; 79 pgs.
	C62	Alejandre, "What is a Tessellation?" The Math Forum, Drexel University, printed 07/29/03, http://mathforum.org/sum95/suzanne/whattess.html, 4 pgs.
	C63	Altmann, "About Nonuniform Rational B-Splines – NURBS," Worcester Polytechnic Institute, printed 7/29/03, http://www.cs.wpi.edu/~matt/courses/cs563/talks/nurbs.html, 6 pgs
	C64	Arraich, "Quick Mask," http://www.arraich.com/ref/aatool_quick_mask6.htm, 3 pgs.
	C65	Bentley, "Rendering Cubic Bezier Patches," Worcester Polytechnic Institute, printed 11/17/03, http://www.cs.wpi.edu/~matt/courses/cs563/talks/surface/bez_surf.html, 10 pgs.
	C66	Birn, "Tutorial: NURBS Head Modeling," printed 07/29/03, http://www.3drender.com/jbirn/ea/HeadModel.html, 5 pgs.
	C67	"Curves," Avid Technology, printed 11/06/03, http://www.iro.umontreal.ca/~roys/softimage/html/model/curves.html, chapter 10, 10 pgs.
	C68	Farin, "NURBS," printed 11/17/03, www.eros.cagd.eas.asu.edu/~farin/rbook/toc.html, 2 pgs.
	C69	Feldman, "Texture Mapping," http://www.geocities.com/SiliconValley/2151/tmap.html (22pgs.)

EXAMINER	DATE CONSIDERED 7/30/04

OIPE JC56
JAN 26 2004
PATENT & TRADEMARK OFFICE

	C70	Fisher et al., "Pixel Values," http://www/dai.ed.ac.uk/HIPR2/value.htm (1 pg.)
	C71	Foskey et al, "*ArtNova:* Touch-Enabled 3D Model Design," Proceedings of IEEE Virtual Reality 2002, March 24-28, 2002, Orlando, Florida pgs. 119-126.
	C72	"Fundamentals of NURBS Modeling," Avid Technology, printed 11/06/03, http://www.iro.umontreal.ca/~roys/softimage/html/model/nurbs_basics.html, chapter 9, 7 pgs.
	C73	Gu et al., "Global Conformal Surface Parameterization," Eurographics Symposium on Geometry Processing (2003), 12 pgs.
	C74	"How to use Postscript Art as a Stencil in Photoshop," Swanson Tech Support, Photoshop Techniques 004, 4 pgs.
	C75	Komerska et al., "Haptic Interface for Center-of-Workspace Interaction: Demonstration Paper," Haptics Interfaces for Virtual Environments and Teleoperator Systems (2002), pp. 352-353.
	C76	Komerska et al., "Haptic Task Constraints for 3D Interactions, " Proceedings, IEEE Haptics Interfaces for Virtual Environments and Teleoperator Systems, (March 22-23, 2003), pp. 270-277.
	C77	Lenzmeier, "Color Depth and Color Spaces," http://www.csbsju.edu/itservices/teaching/c_space/colors.htm (3 pgs.).
	C78	"Lesson 12: Blur, Sharpen & Smudge," http://iit.bloomu.edu/vthc/Photoshop/enhancing/blurring.htm, 3 pgs.
	C79	"Lesson 14: Selection Tools," http://iit.bloomu.edu/vthc/Photoshop/BLENDING/selectiontools.htm, 7 pgs.
	C80	"Lesson 18: Opacity," http://iit.bloomu.edu/vthc/Photoshop/SpecialEffects/opacity.htm, 2 pgs.
	C81	"Lesson 22: Vector Shapes," http://iit.bloomu.edu/vthc/Photoshop/DRAWING/vectorshapes.htm (5 pgs.)
	C82	"Lesson 23: Gradients," http://iit.bloomu.edu/vthc/Photoshop/DRAWING/gradients.htm (7 pgs.)
	C83	"Lesson 19: Color Selection ," http://iit.bloomu.edu/vthc/Photoshop/DRAWING/colorpicker.htm (4 pgs.)
	C84	"Lesson 4: Layers," http://iit.bloomu.edu/vthc/Photoshop/Basics/layers.htm (2 pgs.)
	C85	"Lesson 7: Color Balance ," http://iit.bloomu.edu/vthc/Photoshop/enhancing/colorbalance.htm (3 pgs.)
	C86	"Lesson 8: Brightness & Contrast," http://iit.bloomu.edu/vthc/Photoshop/enhancing/brightness&contrast.htm (2 pgs.)
	C87	Miller et al., "The Design of 3D Haptic Widgets," Proceedings of the 1999 Symposium on Interactive 3D Graphics Conference Proceedings, (1999) pp. 1-6.
	C88	Nagel, "A Closer Look: Photoshop's New Paint Engine, Page 2 of 3," March 07, 2002, http://www.creativemac.com/2002/03_mar/features/ps7dynamics1.htm (6 pgs.).
	C89	Nagel, "A Closer Look: Photoshop's New Paint Engine, Page 3 of 3" March 07, 2002, http://www.creativemac.com/2002/03_mar/features/ps7dynamics1.htm (5 pgs.).
	C90	Nagel, "A Closer Look: Photoshop's New Paint Engine," March 07, 2002, http://www.creativemac.com/2002/03_mar/features/ps7dynamics1.htm (5 pgs.).
	C91	O'Rourke, "Comp.Graphics.Algorithms Frequently Asked Questions, Section 5. 3D Computations," http://www.exaflop.org/docs/cgafaq/cga5.html (13 pgs.).

RECEIVED
JAN 29 2004
Technology Center 2100

EXAMINER	DATE CONSIDERED 7/30/04

OIPE JC56
JAN 26 2004
PATENT & TRADEMARK OFFICE

	C92	"Points, Nets, Patches..." printed 11/17/03, http://www.people.nnov.ru/fractal/splines/nets.htm, 2 pgs.
	C93	Porter et al., "Compositing Digital Images," Computer Graphics, Vol. 18, Number 3, July 1984, pgs. 253-259.
	C94	"Powerful Photoshop Layers: Layer Effects Settings, http://www/webreference.com/graphics/column32/5.html (5 pgs.).
	C95	"Raindrop Geomagic, Inc. product description for "Geomagic Shape," 10/3/03 printout, http://www.geomagic.com/products/shape, 2 pgs.
	C96	"Raindrop Geomagic, Inc. product description for "Geomagic Shape," 11/26/2003 printout, http://www.geomagic.com/products/shape, 2 pgs.
	C97	"Raindrop Geomagic, Inc. product description for "Geomagic Studio," http://www.macdac.com/raindrop/studio.htm (4 pgs.).
	C98	Rea, "Digital Photography and Electronic Imaging Glossary," Version 7.5.2 (August 2000), 40 pgs.
	C99	Rogers, "An Introduction to NURBS," Morgan Kaufmann Publishers, (2000), pp.1-4.
	C100	"Sensable Technologies, "Feature Overview," 11/25/03 printout, http://www.sensable.com/products/3ddesign/freeform/overview.asp, 5 pgs.
	C101	"Sensable Technologies, "Feature Overview: Emboss with Wrapped Image," 11/25/03 printout, http://www.sensable.com/products/3ddesign/freeform/emboss_with_wrap.asp, 1 pg.
	C102	"Sensable Technologies, "Free Form Concept System," 01/20/04 printout, http://www.sensable.com/products/3ddesign/concept/index.asp, 2 pgs.
	C103	Sharman, "The Marching Cubes Algorithm," http://www.exaflop.org/docs/marchcubes/ind.html (6 pgs.).
	C104	Sorkine, et. al, "Bounded-distortion Piecewise Mesh Parameterization," Proceedings of the Conference on Visualization 2002, Boston, Massachusetts, pgs. 355-362.
	C105	"Surfaces," Avid Technology, printed 11/06/03, http://www.iro.umontreal.ca/~roys/softimage/html/model/surfs.html, chapter 11, 22 pgs.
	C106	"Tensor Product Spline Surfaces," printed 11/17/03, http://www.ibiblio.org/e-notes/Splines/Inter.htm, 3 pgs.
	C107	"Touch-Enabled 3D Model Design," Department of Computer Science, University of North Carolina at Chapel Hill (February 2002), 2pgs.
	C108	Weisstein, "Conformal Mapping," Wolfram Research, printed 11/11/03, http://mathworld.wolfram.com/ConformalMapping.html, 7 pgs.

3008742

RECEIVED
JAN 29 2004
Technology Center 2100

EXAMINER		DATE CONSIDERED	7/30/04

JUL 31 2002 PATENT & TRADEMARK OFFICE

COPY OF PAPERS
ORIGINALLY FILED

FORM PTO – 1449

INFORMATION DISCLOSURE STATEMENT

ATTORNEY DOCKET NO.: MIT-051CN2 (5473/53)

APPLICANTS: Zilles et al.

SERIAL NO.: 10/055,565

FILING DATE: October 26, 2001

GROUP: 2173

RECEIVED
AUG 0 5 2002
Technology Center 2100

U.S. PATENT DOCUMENTS

EXAM. INIT.		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	A1	3,168,203	02/01/65	Gallistel	~~214~~	~~1~~	07/07/60
	A2	3,263,824	08/01/66	Jones et al.	214	1	12/20/63
	A3	3,449,008	06/01/69	Colechia	~~294~~	~~88~~	06/08/67
	A4	3,618,786	11/01/71	Fick	~~214~~	~~1CM~~	01/02/69
	A5	3,637,092	01/01/72	George et al.	~~214~~	~~1CM~~	04/30/70
	A6	4,062,455	12/13/77	Flatau	~~214~~	~~1~~	11/01/76
	A7	4,150,803	04/01/79	Fernandez	~~244~~	~~135A~~	10/05/77
	A8	4,302,138	11/01/81	Zarudiansky	~~414~~	~~5~~	01/22/79
	A9	4,510,574	04/09/85	Guttet et al.	~~700~~	~~260~~	08/23/82
	A10	4,604,016	08/01/86	Joyce	~~414~~	7	08/03/83
	A11	4,632,341	12/30/86	Repperger et al.	~~244~~	~~230~~	02/06/85
	A12	4,654,648	03/01/87	Herrington et al.	~~340~~	~~710~~	12/17/84
	A13	4,655,673	04/01/87	Hawkes	~~414~~	~~730~~	05/10/83
	A14	4,661,032	04/01/87	Arai	414	5	12/18/85
	A15	4,676,002	06/01/87	Slocum	~~33~~	~~1 MP~~	12/20/85
	A16	4,795,296	01/01/89	Jau	414	5	10/17/86
	A17	4,800,721	01/31/89	Cemenska et al.	60	~~393~~	02/13/87
	A18	4,837,734	06/06/89	Ichikawa et al.	~~364~~	~~513~~	02/26/87
	A19	4,839,838	06/01/89	LaBiche et al.	364	709.1	03/30/87
	A20	4,888,538	12/19/89	Dimitrov et al.	318	675	05/14/87
	A21	4,893,981	01/16/90	Yoshinada et al.	414	5	03/26/87
	A22	4,907,970	03/01/90	Meenen, Jr.	434	45	03/30/88
	A23	4,907,973	03/13/90	Hon	434	262	11/14/88

Examiner: [signature] Date Considered: 7/29/04

O.I.P.E. JC41 JUL 31 2002 PATENT & TRADEMARK OFFICE

RECEIVED
AUG 0 5 2002
Technology Center 2100

COPY OF PAPERS ORIGINALLY FILED

FORM PTO – 1449

INFORMATION DISCLOSURE STATEMENT

ATTORNEY DOCKET NO.: MIT-051CN2 (5473/53)

APPLICANTS: Zilles et al.

SERIAL NO.: 10/055,565

FILING DATE: October 26, 2001

GROUP: 2173

	A24	4,988,981	01/01/91	Zimmerman et al.	340	709	02/28/89
	A25	5,004,391	04/01/91	Burdea	414	6	08/21/89
	A26	5,007,300	04/01/91	Siva	74	471 X	01/22/90
	A27	5,018,922	05/01/91	Yoshinada et al.	414	5	09/12/89
	A28	5,019,761	05/28/91	Kraft	318	568.1	02/21/89
	A29	5,038,089	08/01/91	Szakaly	318	568.1	10/28/88
	A30	5,044,956	09/01/91	Behensky et al.	434	45	01/12/89
	A31	5,072,361	12/10/91	Davis et al.	364	167.1	02/01/90
	A32	5,103,404	04/07/92	McIntosh	318	568.2	12/20/89
	A33	5,116,051	05/01/92	Moncrief et al.	273	448 B	06/08/90
	A34	5,116,180	05/01/92	Fung et al.	414	5	05/03/90
	A35	5,142,931	09/01/92	Menahem	74	471 XY	02/14/91
	A36	5,143,505	09/01/92	Burdea et al.	414	5	02/26/91
	A37	5,184,319	02/02/93	Kramer	364	806	02/02/90
	A38	5,193,963	03/01/93	McAffee	414	5	10/01/90
	A39	5,223,776	06/29/93	Radke et al.	318	568.1	12/31/90
	A40	5,239,246	08/24/93	Kim	318	568.11	07/08/92
	A41	5.255,211	10/01/93	Redmond	364	578	02/22/90
	A42	5,264,768	11/23/93	Gregory et al.	318	561	10/06/92
	A43	5,266,875	11/01/93	Slotine et al.	395	99X	05/01/91
	A44	5,354,162	10/01/94	Burdea et al.	414	5	10/11/94
	A45	5,382,885	01/17/95	Salcudean et al.	318	568.11	08/09/93
	A46	5,389,865	02/14/95	Jacobus et al.	318	568.11	12/02/92
	A47	5,429,140	07/04/95	Burdea et al.	128	774	06/04/93
	A48	5,459,382	10/17/95	Jacobus et al.	318	568.11	06/09/94
	A49	5.482.051	01/09/96	Reddy et al.	128	733	04/06/94

Examiner: [signature] Date considered: 7/29/04

OIPE JC41
JUL 31 2002
PATENT & TRADEMARK OFFICE

FORM PTO – 1449

INFORMATION DISCLOSURE STATEMENT

COPY OF PAPERS ORIGINALLY FILED

ATTORNEY DOCKET NO.: MIT-051CN2 (5473/53)

APPLICANTS: Zilles et al.

SERIAL NO.: 10/055,565

FILING DATE: October 26, 2001

GROUP: 2173

RECEIVED
AUG 0 5 2002
Technology Center 2100

	A50	5,489,830	02/01/96	Fernandez	~~318~~	628	09/01/94
	A51	5,497,452	03/05/96	Shimizu et al.	~~395~~	~~120~~	03/02/92
	A52	5,515,078	05/01/96	Greschler et al.	~~345~~	~~156~~	
	A53	5,576,727	11/19/96	Rosenberg et al.	~~345~~	~~179~~	06/05/95
	A54	D. 377,932	02/11/97	Schena et al.	D14	114	10/31/95
	A55	5,623,582	04/22/97	Rosenberg	~~395~~	~~99~~	07/14/94
	A56	5,625,576	04/29/97	Massie et al.	~~364~~	578	10/01/93
	A57	5,629,594	05/13/97	Jacobus et al.	318	568.11	10/16/95
	A58	5,691,898	11/25/97	Rosenberg et al.	~~364~~	190	03/28/96
	A59	5,701,140	12/23/97	Rosenberg et al.	~~345~~	~~156~~	07/12/94
	A60	5,721,566	02/24/98	Rosenberg et al.	~~345~~	~~161~~	06/09/95
	A61	5,724,264	03/03/98	Rosenberg et al.	~~364~~	~~559~~	08/07/95
	A62	5,734,373	03/31/98	Rosenberg et al.	~~345~~	~~161~~	12/01/95
	A63	5,737,505	04/07/98	Shaw et al.	~~395~~	~~119~~	10/15/96
	A64	5,739,811	04/14/98	Rosenberg et al.	~~345~~	161	09/27/95
	A65	5,751,289	05/12/98	Myers	~~345~~	~~419~~	01/16/96
	A66	5,754,023	05/19/98	Roston et al.	~~318~~	~~561~~	10/22/96
	A67	5,769,640	08/01/98	Jacobus et al.	~~434~~	~~262~~	08/10/95
	A68	5,784,542	07/21/98	Ohm et al.	~~395~~	~~95~~	10/23/96
	A69	5,790,108	08/04/98	Salcudean et al.	~~345~~	~~184~~	10/23/92
	A70	5,798,752	08/25/98	Buxton et al.	~~345~~	~~146~~	02/27/95
	A71	5,844,392	12/01/98	Peurach et al.	~~318~~	~~568.17~~	05/21/97
	A72	6,046,726	04/04/00	Keyson	~~345~~	~~156~~	09/29/97

Examiner: Daniela Matei Date considered: 7/29/04

OIPE JC41 JUL 31 2002 PATENT & TRADEMARK OFFICE

COPY OF PAPERS ORIGINALLY FILED

FORM PTO – 1449	ATTORNEY DOCKET NO.: MIT-051CN2 (5473/53)
INFORMATION DISCLOSURE STATEMENT	APPLICANTS: Zilles et al.
	SERIAL NO.: 10/055,565
	FILING DATE: October 26, 2001
	GROUP: 2173

RECEIVED
AUG 0 5 2002
Technology Center 2100

FOREIGN PATENT DOCUMENTS

EXAM INIT.		DOCUMENT NUMBER	DATE	COUNTRY CODE	CLASS	SUB CLASS	FILING DATE	ABSTRACT ONLY	ENGLISH LANG (Y/N)
	B1	WO 96/16397	05/30/96	PCT	G09G	5/08	11/22/95	N	Y
	B2	WO 96/22591	07/25/96	PCT	G09G	5/00	01/17/96	N	Y
	B3	WO 96/42078	12/27/96	PCT	G09G	3/02	06/07/96	N	Y
	B4	WO 97/06410	02/20/97	PCT	G01C	7/00	07/29/96	N	Y
	B5	WO 97/12337	04/03/97	PCT	G06F	19/00	09/25/96	N	Y
	B6	WO 97/12357	04/03/97	PCT	G09G	5/00	09/25/96	N	Y
	B7	WO 97/19440	05/29/97	PCT	G09G	5/00	11/05/96	N	Y
	B8	WO 97/21160	06/12/97	PCT	G06F	N/A	11/26/96	N	Y

OTHER ART, JOURNAL ARTICLES, ETC.

EXAM. INIT.		OTHER DOCUMENTS: (Including Author, Title, Date, Relevant Pages, Place of Publication)
	C1	Adachi, Y., "Touch and Trace on the Free-Form Surface of Virtual Object," Proceedings of IEEE Virtual Reality Annual International Symposium, September 18-22, 1993, Seattle WA, pgs. 162-168.
	C2	Agrawala, M. et al "3D Painting on Scanned Surfaces", Stanford University, 1995, pgs 145-150.
	C3	Atkinson, W. D. et al., "Computing with Feeling" COMPUT. & GRAPHICS, Vol. 2, 1977, pgs. 97-103.
	C4	Barr, Alan H.; "Global and Local Deformations of Solid Primitives"; COMPUTER GRAPHICS; Vol. 18, No. 3, pgs. 21-30 (July, 1984).
	C5	Blinn, J.F., "Simulation of Wrinkled Surfaces," COMPUTER GRAPHICS, Volume 12-3, August 1978, pgs. 286-292.
	C6	Brooks, F. P. et al., "Project GROPE - Haptic Displays for Scientific Visualization," COMPUTER GRAPHICS, Vol. 24, No. 4, August 1990, pgs. 177-185.
	C7	Colgate, J. E. et al., "Factors Affecting the Z-Width of a Haptic Display," published by IEEE Computer Society Press, Los Alamitos, California, in Proceedings: 1994 IEEE International Conference On Robotics and Automation, held May 8-13, 1994 in San Diego, California, Vol. 4, 1994, pgs. 3205-3210.
	C8	Colgate, J. E. et al., "Issues in the Haptic Display of Tool Use," published by IEEE Computer Society Press, Los Alamitos, California, in Proceedings: 1995 IEEE/RSJ International Conference on Intelligent Robots and Systems - Human Robot Interaction and Cooperative Robots, held August 5-9, 1995 in Pittsburgh, Pennsylvania, 1995, pgs. 140-145.
	C9	Dworkin, P. et al., "A New Model for Efficient Dynamic," Fourth Eurographics Animation and Simulation Workshop Proceedings Eurographics Technical Report Series, ISSN 1017-4656, September 4-5, 1993, pp. 135-147.

OIPE JC41
JUL 31 2002
PATENT & TRADEMARK OFFICE

FORM PTO – 1449

INFORMATION DISCLOSURE STATEMENT

COPY OF PAPERS ORIGINALLY FILED

ATTORNEY DOCKET NO.: MIT-051CN2 (5473/53)

APPLICANTS: Zilles et al.

SERIAL NO.: 10/055,565

FILING DATE: October 26, 2001

GROUP: 2173

RECEIVED
AUG 0 5 2002
Technology Center 2100

	C10	Ioeue H.et al., "Parallel Manipulator," Proceedings of 3rd Robotics Research: The Third International Symposium, Faugeras & Giralt, eds., MIT Press 1986.
	C11	Iwata H., "Pen-based Haptic Virtual Environment," Proceedings of IEEE Virtual Reality Annual International Symposium, (September 18-22, 1993, Seattle, WA), pp. 287-292.
	C12	Hirata, Y. et al., "3-Dimensional Interface Device for Virtual Work Space," Proceedings of the 1992 IEEE, July 7-10, 1992, pp. 889-896.
	C13	Howe, R.D. et al., "Task Performance with a Dextrous Telcoperated Hand System," Telemanipulator Technology, November 1992, Proceedings of SPIE, Vol. 1833, pp. 1-9.
	C14	Immersion Corporation Website, Immersion Corporation, 1997, 4 pgs. (not admitted as prior art)
	C15	Immersion Corporation, "Laparoscopic IMPULSE ENGINE□: A New FORCE FEEDBACK Surgical Simulation Tool", Immersion Corporation, 1995.
	C16	Immersion Corporation, "Virtual Laparoscopic Interface", Immersion Corporation, 1995, 1 pg.
	C17	Immersion Corporation, "The IMPULSE ENGINE™", Immersion Corporation, 1996.
	C18	Kotoku, T., et al., "A Force Display Algorithm for Virtual Environments," SICE, pp. 347-355, 1992.
	C19	Kraft Telerobotics, Inc., "GRIPS Force Feedback Manipulator System," Kraft Telerobotics, Inc. (date Unknown) 4 pgs.
	C20	Kraft Telerobotics, Inc., "GRIPS Master/Slave Manipulator System," Kraft Telerobotics, Inc., 1988.
	C21	Kraft Ocean Systems, "Grips Underwater Manipulator System", 4 pgs. (date unknown)
	C22	Marcus, B.A., et al., "EXOS Research on Master Controllers for Robotic Devices," FIFTH ANNUAL WORKSHOP ON SPACE OPERATIONS APPLICATIONS AND RESEARCH (SOAR '91) pp. 238-245, July 1991.
	C23	Massie, T. H., "Design of a Three Degree of Freedom Force-Reflecting Haptic Interface", Massachusetts Institute of Technology, Bachelor of Science in Electrical Science and Engineering Thesis, May, 1993, pgs. 1-38.
	C24	Massie, T. H., "Initial Haptic Explorations with the Phantom: Virtual Touch Through Point Interaction", Massachusetts Institute of Technology Master of Science Thesis, February, 1996, pgs. 1-49. (not admitted as prior art)
	C25	McAffee et al., "Teleoperator Subsystem/Telerobot Demonstrator," Force Reflecting Hand Controller Equipment Manual, Jet Propulsion Laboratory, January 1988.
	C26	Minsky et al., "Feeling and Seeing: Issues in Force Display," COMPUTER GRAPHICS, Vol. 24, No. 2, March 1990, pgs. 235-270.
	C27	Minsky, M., "Computational Haptics: The Sandpaper System for Synthesizing Texture for a Force-Feedback Display," Massachusetts Institute of Technology Ph.D. Thesis, June, 1995, pgs. 1-217.
	C28	Morgenbesser, H. B., "Force Shading for Shape Perception in Haptic Virtual Environments", Massachusetts Institute of Technology Master of Engineering Thesis, September, 1995, pgs. 1-77.
	C29	Salcudean S. E. et al., "On the Emulation of Stiff Walls and Static Friction with a Magnetically Levitated Input/Output Device," DYNAMIC SYSTEMS AND CONTROL: VOLUME 1, DSC-Vol. 55-1, 1994, pgs. 303-309.

JUL 31 2002 PATENT & TRADEMARK OFFICE

COPY OF PAPERS ORIGINALLY FILED

FORM PTO – 1449

INFORMATION DISCLOSURE STATEMENT

ATTORNEY DOCKET NO.: MIT-051CN2 (5473/53)

APPLICANTS: Zilles et al.

SERIAL NO.: 10/055,565

FILING DATE: October 26, 2001

GROUP: 2173

RECEIVED
AUG 0 5 2002
Technology Center 2100

	C30	~~Salisbury, K. et al., "Haptic Rendering: Programming Touch Interaction with Virtual Objects," Presented and disseminated at the 1995 Symposium on Interactive 3D Graphics held April 9-12, 1995 in Monterey, GA, sponsored by the Association for Computing Machinery (ACM) and published by the ACM in Proceedings: 1995 Symposium on Interactive 3D Graphics, Monterey, California, April 9-12, 1995, pgs. 123-130.~~
	C31	~~SensAble Devices, Inc., "Phantom Haptic Interface," 1995, Cambridge, MA (2 pgs).~~
	C32	~~SensAble Technologies, Inc., "Phantom Haptic Interface," 1996,~~ Cambridge, ~~MA (6 pgs).~~
	C33	Shimoga, K. B., "A Survey of Perceptual Feedback Issues in Dextrous Telemanipulation: Part I. Finger ~~Force Feedback" published by IEEE Neural Networks Council in IEEE Virtual Reality Annual International Symposium, held September 18-22, 1993 in Seattle, Washington, 1993, pgs. 263-270.~~
	C34	~~Snow, E. et al., "Compact Force-Reflecting Hand Controller," NASA Tech Brief, Vol. 15, No. 4 from Jet Propulsion Laboratory Report NPO-17851-7348, April 1991, pgs. i, 1-3, 1a-11a, 14a, 15a.~~
	C35	~~Sutter, P.H., J. C. Iatridis and N. V. Thaker, "Response to Reflected-Force Feefback to Fingers in Teleoperations," Proc. of the NASA Conf. on Space Telerobotics, pp. 65-74, NASA JPL, January 1989.~~
	C36	~~Swarup, N., "Haptic Interaction with Deformable Objects Using Real-Time Dynamic Simulation", Massachusetts Institute of Technology, September 1995, pgs. 1-83.~~
	C37	~~Tanie, K., et al., "Force Display Algorithms", 1993 IEEE International Conference on Robotics and Automation, May 2-7, 1993, Atlanta Georgia, USA, 1993, pp. 60-78.~~
	C38	~~Wang, S.W. and Kaufman, A.E., "Volume Sculpting", 1995 Symposium on Interactive 3D Graphics, Monterey, California, pgs. 151-156.~~
	C39	~~Terzopoulos, D. et al.; "Elastically Deformable Models"; COMPUTER GRAPHICS, Vol. 21, No. 4, pgs. 205-214 (July, 1987).~~
	C40	~~Yoshikawa, T. et al., "Construction of Virtual World Using Dynamics Modules and Interaction Modules," Proceedings of the 1996 IEEE International Conference on Robotics and Automation (Minneapolis, MN), pp. 2358-2364 (April 1996).~~
	C41	~~Zilles, C. B. et al., "A Constraint-Based God-object Method for Haptic Display," published by IEEE Computer Society Press, Los Alamitos, California, in Proceedings of the 1995 IEEE/RSJ International Conference on Intelligent Robots and Systems - Human Robot Interaction and Cooperative Robots, held August 5-9, 1995 in Pittsburgh, Pennsylvania, 1995, pgs. 146-151.~~